cm B2 'd 4. ~~26~~. A method of making a micro cooling device in accordance with claim ~~23~~ 1, wherein the step of coating the doped surface includes deposition of a metal.--

REMARKS

The above claims are similar to claims 57-60, but do not include the changes made by way of Examiner's Amendment in the parent application. Although Applicants' representative initially agreed to the change, upon further review, it was believed that one might interpret the change was affecting the scope of the claim beyond what was intended. Accordingly, the claims as they existed before the Examiner's Amendment are represented for examination. The parent application issued as US. Patent No. 6,334,480 on January 1, 2002 (copy enclosed).

Favorable action on the merits is respectfully requested.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: [signature]
Charles F. Wieland III
Registration No. 33,096

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

Date: February 1, 2002

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Page 1, Paragraph Beginning at Line 16

However, in such a conventional cooling device, cooling fins are fixed, and their surfaces are smooth, so a significantly thick heat boundary layer 4 is spontaneously formed on a cooling fin when the air flows along the smooth surface of the cooling fin, as shown in FIG. 3. As a result, heat cannot be effectively released from the cooling fin 2. This is because an air space 5 accumulated in a heat boundary layer serves to resist heat transfer so as to inhibit heat from being released from the surface of the cooling fin 2. Thermal resistance within the accumulated air space 5 increases as distance from the surface of the cooling fin 2 decreases. The air space 5 is motionless on the surface of the cooling fin 2, so only heat transfer due to diffusion effects occurs, and there is not convection. As shown in FIG. 3, the air is forcibly made to flow toward the cooling fin 2 by the blast fan 3 at a speed of V_0. In a portion distance from the accumulated [neat] heat boundary layer 4 on the cooling fin 2, the air flows at a speed of about V_0, but the air flows at a speed of about V_1 which is less than V_0 when it passes through the heat boundary layer 4. The air flows at a speed of V_2 which is less than V_1 in the underlying accumulated air space 5. The flow of the air actually halts on the surface of the cooling fin 2. The halt of the air flow is due to friction and viscous force working between the air and the cooling fin 2, in view of [hydrodynamics] aerodynamics. Accordingly, a large cooling fin is required to release a large amount of heat. However, as the size of a cooling fin increases, the surface area of the cooling fin and thermal resistance increase. So, the size of a cooling device is larger,

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and a heat transfer rate per unit volume decreases. This goes against the trend of miniaturizing parts, for example, the parts of a computer.

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